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ABSTRACT

The ability to bridge together geographically-distant populations for training is made possible through teletraining, a human performance system which integrates telecommunications into the planning, design, and delivery of training programs. Typically, teletraining uses standard telephone lines or digital communication services to provide interactive audio, audio-graphic, and video programs that are viewed at all locations on the teleconference. (As few as two locations and as many as 100-plus locations have participated in international teleconferences.) The value of saving the cost of travel time increases its appeal, and linking experts to learners globally has many benefits. However, a successful teletraining experience requires appropriate awareness of cultural differences and instructional design strategies, as well as adequate preparation for the technical support required to deliver the course. Audio teletraining, audio-graphic teletraining, and video teletraining are described, the advantages and disadvantages of each are discussed, and guidelines for the design and development of teletraining programs are provided. Cultural considerations in designing international distance education environments, based on Geert Hofstede's model, are also considered. A description of an international teletraining program, which was held as part of the 1988 convention of the Association of European Correspondence Schools in Istanbul, Turkey, concludes the paper. (5 references) (GL)

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Designing For International Teletraining

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GLOBAL INFORMATION AGE

Unprecedented growth in international trading is expected in the near future. Because we live in a global information age, the movement and management of information is critical to the growth of a business. As corporations expand their operations into international settings, they are faced with geographical and cultural constraints which require innovative solutions. Moreover corporations with an international presence will have complex training requirements to keep the distributed workforce current. There will be an increased need for training delivery in locations very far from the major training centers. To meet this need for training, some high-tech companies have turned to the use of "teletraining".

Teletraining is a human performance system which integrates telecommunications into planning, design and delivery of training programs. Typically, teletraining uses standard telephone lines or digital communication services to provide interactive audio, audio-graphic and video programs which are viewed at all locations on the teleconference. As few as two locations and over 100 locations have participated in international teleconferences.

AUDIO TELETRAINING

In audio teletraining, simple telephony transmits voice communication between the instructor and the students at remote locations. When more than two locations are involved in a teletraining program, a "bridge" is used to connect all locations so that they can be heard. In the international teletraining environment, information which needs to be given to the work force in order to perform a task can be delivered over international direct dial lines. This type of technology has been proven to be successful for hundreds of organizations world wide.

AUDIO-GRAPHIC TELETRAINING

In audio-graphic teletraining, graphics or still video image technology is added to the audio teletraining medium. Audio-graphic technologies include simple 35mm slides, facsimile, sophisticated personal computers networked together, and still frame video. Normally a speakerphone is used or sometimes the instructor will wear a headset to permit hands free operation. The emerging standard for audio-graphic teletraining is the personal computer networking technology. In PC teletraining the speakerphone is connected to a modem which is connected to the computer. In addition, a writing tablet and pen are connected to the computer.

When the instructor speaks, the students at the remote location(s) will hear the instructions. At the same time, the instructor can type on the keyboard or draw on the tablet and the words or drawings will appear at the remote location(s). The instructor can electronically transmit the computer graphics or mail the computer files to the students before the program begins. When the instructor reads or calls up a file from the diskette, the same screen will appear on the screens of the students.

At the student location, the speakerphone and the computer equipment are placed in the middle of a table to be shared among the class participants. Generally, there are six to twelve students in a class. The students have the ability to raise questions for their instructor over the speakerphone and to type on the keyboard or to draw on the writing tablet. The setup of the equipment provides audio and visual channels for the interaction between the students and the instructor. This audio-graphic teletraining also uses simple international direct dial calling to establish international connections.

VIDEO TELETRAINING

The video teletraining medium offers the additional capability of allowing the students to see live motion video of the instructors. This is accomplished by using high capability digital communications services or analog broadcast video services. The video offers more channel capacity but the costs and technology planning requirements increase dramatically over dial up international long distance services used for audio and audio-graphic teletraining programs. If the program design requires a motion component to satisfy the instructional requirements of the task, use video. Begin the technology planning at least three months before the scheduled program to conduct all of the technical coordination with the public telephone and telegraph companies (PTT) from each country on the program.

TELETRAINING DESIGN AND DEVELOPMENT

The teletraining instructor designs a program tailored to the unique requirements of the audience and appropriate for the delivery conditions in the teletraining medium. The principles of good instructional design traditionally used for face-to-face delivery are used as starting points in teletraining. In addition two important design modifications for international teletraining must be addressed. They are culture specific design considerations and technology planning.

Just as in face-to-face instruction, start with goal statements and/or behavioral objectives. If the objective is to enable students to demonstrate a new skill, pre- and post-tests may be given. If the objective is awareness of subject material, measurement at the end may be informal testing through questioning by the instructor. Role play scenarios are another way to check for student understanding in a teletraining environment.

The key word in teletraining is variety. There are many strategies for presenting instruction and guiding the students to accomplish the objectives. From experience, it is known that 20 minutes are about as long as a student can maintain undivided attention in a teletraining environment. Dividing up instruction into 20-minute mini-modules with each new mini-module employing a different instructional strategy can keep student attention high for up to seven hours per day. The most common strategies employed for international teletraining are: lecture, question and answer periods, team teaching, case studies, demonstrations, brainstorming and group work exercises. Assignments can be given for the groups at the remote locations to work as a team and then report back to the larger group. The creativity and the imagination of the instructor can minimize the feelings of the remoteness of the class.

Visualization of concepts is an important dimension for cross cultural training. A well designed graphic can "speak" a universal language. Since the computer has interactive graphic capabilities, the visuals can be more intricate in design than a printed handout. Visuals might include computer icons, charts with different segments appearing at different times. The instructor can write on a graphics tablet to annotate any visual that appears on the computer screen. At the remote locations the students can also go "off-line" and look at the other screens from the computer diskette. This may be done after the lesson for review. For written assignment, the instructor may ask questions, which require the students to write the answers using the keyboard.

As part of the instructional design, the instructor can build in prepared visual material to organize learning points during the lesson using the graphic capabilities of the computer. Because of the opportunity for manipulation of visuals on the screen, interactive graphics become a powerful vehicle for communications with an international audience that have English as a second language. Visuals provide content organization and the redundancy in the message essential for correct interpretation of the instructor's message.

CULTURAL CONSIDERATIONS

Another major design factor is adjustment for cultural differences between the instructor and the participants in the course. In a highly technological society, like the United States, instructors and students are accustomed to seeing microcomputers used for training. In another country, the new technologies may not be as widely applied to training or accepted as appropriate for instructional applications. The instructors and students may need to adjust to the new learning environment.

The "international teletrainer" needs to understand and design for cultural differences. A model which can be used to understand some of the cultural differences encountered in international distance learning environments is described by Geert Hofstede. The four dimensions of the Hofstede Model are:

1. Power distance
2. Uncertainty Avoidance
3. Individualism
4. Masculinity

Power distance is the extent to which a society accepts the unequal distribution of power in a society. For example, in a country like Turkey, with a high degree of power distance, there is an acceptance that power-holders are entitled to privileges, superiors are not accessible and the general population is dependent. For the instructor in this type of society, expertness by title and statement of educational background is needed to establish credibility. The instructor also needs to also be sensitive to group situations where superiors and subordinates are together. For example, questions need to be directed to or through the ranking member of the remote audience.

Uncertainty avoidance is the degree to which a society can deal with ambiguity and tolerance for deviation from the norm. For example, in Turkey, using the Hofstede Model, there is a high level of uncertainty avoidance. The instructional design must be organized and clearly articulated for acceptance. Formal rules of order would provide greater stability. A highly structured lecture would be expected in an international presentation.

American society fosters individualism. Many other societies do not. In countries where individualism is low there are more clans; there are expectations for relatives to look after family members and there is a high level of loyalty to the clan. Individualism in Turkey is low and it would more likely be characterized as a collectivist society. Therefore, when the instructor is communicating with students, analogies and examples should reinforce these values for acceptance and credibility. Also, the instructor should avoid situations which might embarrass an individual in front of a group.

The last of the Hofstede's dimensions is masculinity or the degree to which the values are "masculine". For example, masculine traits, according to Hofstede are: assertiveness, materialism, and self-centeredness. Although the use of the term masculine may be considered uncomplementary in some cultures, it helps to describe the behavior. Turkey on the graphs used to illustrate Hofstede's model scored closer to the feminine values. Some examples of important values in a feminine culture are quality of life, interdependence and service. For the instructor the knowledge of these values assist in examples and illustrations as part of the lesson.

For any intercultural teletraining, the instructor should be aware of culture diversity. The use of the Hofstede model is one good tool but other types of preparation should be done by the teletrainer. Speaking to those who live in the culture and those who conduct traditional classroom instruction would be one way for the teletrainer to prepare. At this time little is known about cross-cultural teletraining. The teletrainers will need to synthesize what they know about teletraining and what they can learn about the cultural differences. The subtle differences can be important factors in the success of the international teletraining program.

AN INTERNATIONAL TELETRAINING PROGRAM

An understanding of the technology of teletraining and cultural diversity were integral components in the design of a demonstration teletraining program for Turkey. This teleconference was held as part of the annual Association of European Correspondence Schools (AECS) convention held in Istanbul in April of 1988. The call linked AT&T in Cincinnati, Ohio to the conference in Istanbul, Anadolu University's Open Education Faculty in Eskisehir and the Ministry of Education in Ankara. See Figure 1.

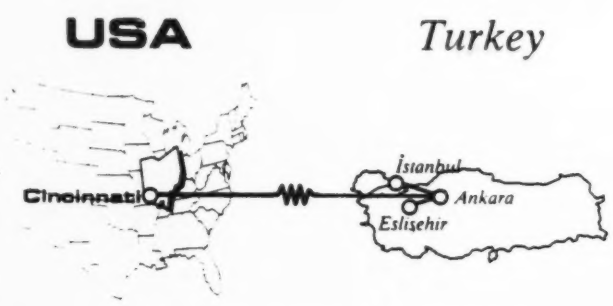

FIGURE 1. ILLUSTRATES GEOGRAPHICAL SEPARATION

The telephone call used AT&T International Long Distance Service and the Turkish PTT's country service and bridge. During the three month preparation for the teleconference in Turkey, some constraints were encountered. Since multi-point teleconferencing had never been done in Turkey, technical coordination with the PTT was necessary. Two rehearsals of the presentation were conducted to insure that the equipment worked and on-site coordinators at each site were comfortable with their responsibilities.

The instructor in the United States was Dr. Alan Chute, Manager of the National Teletraining Center of AT&T. He used slide and lecture to explain the concept of teletraining and describe the ways that AT&T uses teleconferencing to train its employees and clients. The slides were redesigned for this presentation for Turkey by Dr. Mahassen Ahmad who was completing an internship with AT&T. Dr. Ahmad who had been a professor in the Middle East chose culturally appropriate colors and symbols to illustrate key concepts. See Figures 2 and 3.

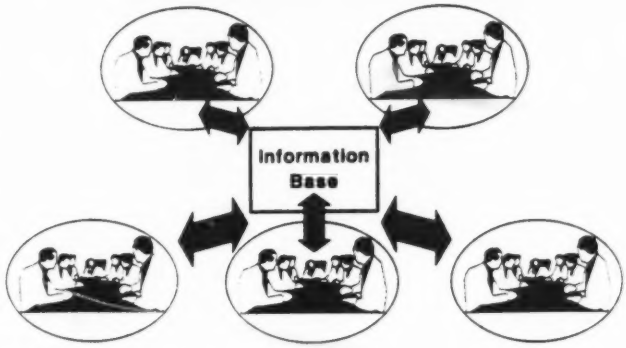

FIGURE 2. ILLUSTRATES INTERACTION POTENTIAL

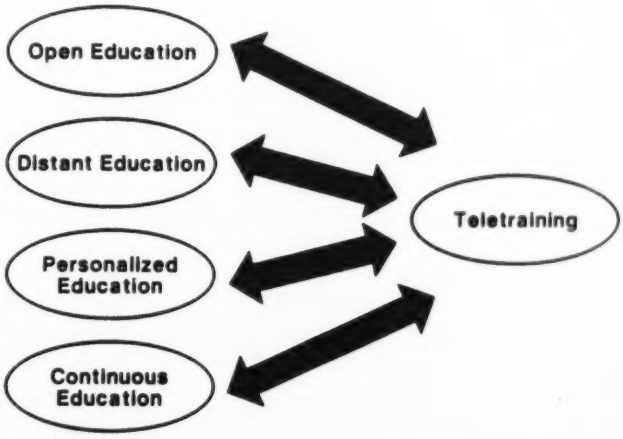

FIGURE 3. RELATES TELETRAINING TO OTHER CONCEPTS

In Turkey Ms. Karen Murphy, the 1988 Fulbright scholar recipient to Turkey was the on-site coordinator in Istanbul. She also coordinated PTT bridging with the other sites. She introduced the international teletraining presentation and then facilitated the interaction in the question and answer period. The media used in the presentation were 35mm slides and a written summary of the presentation.

In meeting the cultural differences several conditions supported the acceptance of the teleconference. The first condition was the level of expertness of the lecturer. Dr. Chute possessed the skill, expertise and knowledge which gained the respect of the audience. Second there was recognition for the institutions which participated as leaders in the distance education system. Third, the instructional strategies such as a high degree of organization and support materials at each site lessened ambiguity and strengthened the teleconference's acceptance. Fourth, culturally appropriate visuals were prepared which contributed to the understanding of key concepts.

The ability to bridge together geographically distance populations for training is made possible through teletraining. The value of saving the cost of travel and time makes it appealing. In addition, linking experts to people globally has many benefits. For a successful teletraining experience, there should be appropriate awareness of cultural differences, instructional design strategies and preparation for the technical support required to deliver the course. The teletrainer must overcome some anticipated constraints. In countries which are undeveloped, telephone line quality and availability may not be adequate. Beside the technical barrier, there may be social barriers imposed by those who prefer face-to-face communication. Many of the applications on international teletraining are in the early stages. Further developments in technologies and instructional strategies will continue to support international teletraining application and greater acceptance.

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